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Amendment and Response

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

Page 2 of 14

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Currently Amended) A polymer composition comprising:
a hydrophilic polymer;
a hydrophobic polymer; and
a bioactive agent selected from the group consisting of a metal oxide of silver, a metal oxide of copper, a metal oxide of zinc, and combinations thereof;
wherein the hydrophobic polymer forms a continuous phase;
wherein the bioactive agent is dispersed within the hydrophilic polymer;
wherein the polymer composition is nonadherent and contains less than 1 wt% water based on the total weight of the composition; and
wherein the bioactive agent has a particle size less than one micron.
2. (Previously Presented) The polymer composition of claim 1, wherein the hydrophilic polymer is an anionic polymer, a cationic polymer, an amphoteric polymer, or combinations thereof.
3. (Previously Presented) The polymer composition of claim 1 wherein the hydrophilic polymer is selected from the group consisting of polyhydroxyalkyl acrylates and methacrylates; poly(meth)acrylic acid and salts thereof; polyvinyl alcohols; polyoxyalkylenes; polystyrene sulfonates; polysaccharides; alginates; gums; celluloses; polymers prepared from water-soluble hydrazine derivatives; polyurethanes, mono-olefinic sulfonic acids and their salts; and combinations thereof.
4. (Original) The polymer composition of claim 1 wherein the hydrophilic polymer is an

Amendment and Response

Page 3 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

amine-containing organic polymer selected from the group consisting of poly(quaternary amines), polylactams, polyamides, and combinations thereof.

5. (Original) The polymer composition of claim 1 wherein the hydrophilic polymer is a quaternary ammonium salt of an organic polymer.

6. (Original) The polymer composition of claim 1, wherein the hydrophilic polymer is a carboxylic acid-containing organic polymer.

7. (Currently Amended) A polymer composition preparable by a method comprising combining components comprising:

a hydrophilic polymer;

a hydrophobic polymer;

a metal compound selected from the group consisting of a silver compound, a copper compound, a zinc compound, and combinations thereof, wherein the silver compound has a solubility of at least 0.1 gram per liter in water;

water in an amount of 1 to 20 wt% based on the total weight of the polymer composition;

and

a hydroxide source that converts the metal compound to the corresponding metal oxide;

wherein the components are combined in a manner to disperse the metal oxide within the hydrophilic polymer and to form a continuous hydrophobic phase; and

wherein the polymer composition is nonadherent.

8. (Previously Presented) The polymer composition of claim 7 wherein the hydrophilic polymer is selected from the group consisting of polyhydroxyalkyl acrylates and methacrylates; poly(meth)acrylic acid and salts thereof; polyvinyl alcohols; polyoxyalkylenes; polystyrene sulfonates; polysaccharides; alginates; gums; cellulotics; polymers prepared from water-soluble

Amendment and Response

Page 4 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

hydrazine derivatives; polyurethanes, mono-olefinic sulfonic acids and their salts; and combinations thereof.

9. (Original) The polymer composition of claim 7 wherein the hydrophilic polymer is an amine-containing organic polymer selected from the group consisting of poly(quaternary amines), polylactams, polyamides, and combinations thereof.

10. (Original) The polymer composition of claim 9 wherein the amine-containing organic polymer is a quaternary ammonium salt of an organic polymer.

11. (Cancelled)

12. (Original) The polymer composition of claim 7, wherein the hydrophilic polymer is a carboxylic acid-containing organic polymer.

13. (Currently Amended) A polymer composition preparable by a method comprising combining components comprising:

a hydrophilic polymer;

a hydrophobic polymer;

an ammonia source;

a metal oxide selected from the group consisting of silver oxides, copper oxides, zinc oxide, and combinations thereof; and

water in an amount of 1 to 20 wt% based on the total weight of the polymer composition;

wherein the components are combined in a manner to disperse the metal oxide within the hydrophilic polymer and to form a continuous hydrophobic phase; [[and]]

wherein the metal oxide has a particle size of less than one micron; and

wherein the polymer composition is nonadherent.

Amendment and Response

Page 5 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

14. (Previously Presented) The polymer composition of claim 13 wherein the hydrophilic polymer is selected from the group consisting of polyhydroxyalkyl acrylates and methacrylates; poly(meth)acrylic acid and salts thereof; polyvinyl alcohols; polyoxyalkylenes; polystyrene sulfonates; polysaccharides; alginates; gums; cellulotics; polymers prepared from water-soluble hydrazine derivatives; polyurethanes, mono-olefinic sulfonic acids and their salts; and combinations thereof.

15. (Original) The polymer composition of claim 13 wherein the ammonia source is selected from the group consisting of ammonia and ammonium salts.

16. (Original) The polymer composition of claim 15 wherein the ammonium salt is selected from the group consisting of ammonium pentaborate, ammonium acetate, ammonium carbonate, ammonium peroxyborate, ammonium tetraborate, triammonium citrate, ammonium carbamate, ammonium bicarbonate, ammonium malate, ammonium nitrate, ammonium nitrite, ammonium succinate, ammonium sulfate, ammonium tartarate, and mixtures thereof.

17. (Previously Presented) The polymer composition of claim 13 wherein the ammonia source and the metal oxide form an ammonia-metal complex with a solubility greater than 0.1 gram per liter in water.

18. (Original) The polymer composition of claim 13, wherein the hydrophilic polymer is a carboxylic acid-containing organic polymer.

19. (Currently Amended) A polymer composition preparable by a method comprising combining components comprising:

a dispersion comprising a hydrophobic polymer and absorbent hydrophilic microparticles,

Amendment and Response

Page 6 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

wherein the microparticles when in a nonhydrated form have an average particle size of 10 microns or less;

a metal compound selected from the group consisting of a silver compound, a copper compound, a zinc compound, and combinations thereof, wherein the silver compound has a solubility in water of at least 0.1 gram per liter in water; and

a hydroxide source that converts the metal compound to the corresponding metal oxide;

wherein the components are combined in a manner to produce a polymer composition wherein the hydrophobic polymer forms a continuous phase and the metal oxide is incorporated within the hydrophilic microparticles; and

wherein the polymer composition is nonadherent.

20. (Original) The polymer composition of claim 19 wherein the dispersion comprises absorbent hydrophilic microparticles, wherein the microparticles comprise an amine-containing organic polymer selected from the group consisting of a poly(quaternary amine), a polylactam, a polyamide, and combinations thereof.

21. (Original) The polymer composition of claim 19 wherein the dispersion comprises absorbent hydrophilic microparticles, wherein the microparticles comprise a carboxylic acid containing organic polymer.

22. (Previously Presented) The polymer composition of claim 19 wherein the microparticles have an average particle size of 1 micron or less when in a nonhydrated form.

23. (Previously Presented) The polymer composition of claim 19 wherein the microparticles have an average particle size of 0.5 micron or more when in a nonhydrated form.

24. (Previously Presented) The polymer composition of claim 19 further comprising

Amendment and Response

Page 7 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

secondary absorbent particles having an average particle size of greater than 10 microns when in a nonhydrated form.

25. (Original) The polymer composition of claim 24 wherein the secondary absorbent particles having an average particle size of greater than 10 microns are superabsorbent.

26. (Original) The polymer composition of claim 19 wherein the microparticles are superabsorbent.

27. (Currently Amended) A polymer composition preparable by a method comprising combining components comprising:

an organic polymer matrix comprising a hydrophobic polymer;

a dispersion comprising absorbent hydrophilic microparticles, wherein the microparticles when in a nonhydrated form have an average particle size of 10 microns or less;

a metal compound selected from the group consisting of a silver compound, a copper compound, a zinc compound, and combinations thereof, wherein the silver compound has a solubility of at least 0.1 gram per liter in water; and

a hydroxide source that converts the metal compound to the corresponding metal oxide;

wherein the components are combined in a manner to produce a polymer composition wherein the hydrophobic polymer forms a continuous phase and the metal oxide is incorporated within the hydrophilic microparticles; and

wherein the polymer composition is nonadherent.

28. (Original) The polymer composition of claim 27 wherein the dispersion comprises absorbent hydrophilic microparticles, wherein the microparticles comprise an amine-containing organic polymer selected from the group consisting of a poly(quaternary amine), a polylactam, a polyamide, and combinations thereof.

Amendment and Response

Page 8 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

29. (Original) The polymer composition of claim 27 wherein the dispersion comprises absorbent hydrophilic microparticles, wherein the microparticles comprise a carboxylic-acid-containing organic polymer.
30. (Previously Presented) The polymer composition of claim 27 wherein the microparticles have an average particle size of 1 micron or less when in a nonhydrated form.
31. (Previously Presented) The polymer composition of claim 27 wherein the microparticles have an average particle size of 0.5 micron or more when in a nonhydrated form.
32. (Previously Presented) The polymer composition of claim 27 further comprising secondary absorbent particles having an average particle size of greater than 10 microns when in a nonhydrated form.
33. (Original) The polymer composition of claim 32 wherein the secondary absorbent particles having an average particle size of greater than 10 microns are superabsorbent.
34. (Original) The polymer composition of claim 27 wherein the microparticles are superabsorbent.
35. (Original) The polymer composition of claim 27 wherein the organic polymer matrix comprises an elastomeric polymer.
36. (Previously Presented) The polymer composition of claim 35 wherein the elastomeric polymer is selected from the group consisting of a polyisoprene, a styrene-diene block copolymer, a natural rubber, a polyurethane, a polyether-block-amide, a poly-alpha-olefin, a (C1-

Amendment and Response

Page 9 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

C20) acrylic ester of (meth)acrylic acid, an ethylene-octene copolymer, and combinations thereof.

37. (Original) The polymer composition of claim 27 wherein the organic polymer matrix comprises a thermoplastic polymer.

38. (Original) The polymer composition of claim 37 wherein the thermoplastic polymer is a polyolefin.

39. (Original) The polymer composition of claim 27 wherein the organic polymer matrix comprises a hydrophilic polymer selected from the group consisting of a polysaccharide, a polyether, a polyurethane, a polyacrylate, a cellulosic, and an alginate.

40. (Original) The polymer composition of claim 27 wherein the hydrophilic polymer microparticles comprise a quaternary ammonium salt of an organic polymer.

41. (Original) The polymer composition of claim 40 wherein the microparticles comprise a cationic homopolymer of the methyl chloride quaternary salt of 2-(dimethylamino)ethyl methacrylate.

42. (Original) The polymer composition of claim 27 further comprising an additive selected from the group consisting of a plasticizer, a tackifier, a crosslinking agent, a stabilizer, an extruding aid, a filler, a pigment, a dye, a swelling agent, a foaming agent, a chain transfer agent, and combinations thereof.

43. (Original) The polymer composition of claim 27 wherein the organic polymer matrix comprises a mixture of two or more polymers.

Amendment and Response

Page 10 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

44. (Original) The polymer composition of claim 27 wherein the microparticles are present in an amount of 1 wt-% to 60 wt-%, based on the total weight of the polymer composition.

45. (Original) The polymer composition of claim 27 wherein the composition includes water in an amount of 1 wt-% to 20 wt-%, based on the total weight of the polymer composition.

46-47. (Cancelled)

48. (Original) The polymer composition of claim 1 wherein the composition is stable.

49. (Original) The polymer composition of claim 1, wherein the composition is in the form of a hydrocolloid.

50. (Original) The polymer composition of claim 7 comprising water in an amount of less than 1 weight percent, based on the total weight of the polymer composition.

51-52. (Cancelled)

53. (Currently Amended) The polymer composition of claim 27 wherein the hydrophobic [[phase]] polymer is liquid at room temperature.

54. (Currently Amended) The polymer composition of claim 53 wherein the hydrophobic [[phase]] polymer is mineral oil.

55. (Currently Amended) The polymer composition of claim 27 wherein the hydrophobic [[phase]] polymer is solid at room temperature.

Amendment and Response

Page 11 of 14

Serial No.: 10/728,439

Confirmation No.: 9418

Filed: 5 December 2003

For: POLYMER COMPOSITION WITH BIOACTIVE AGENT, MEDICAL ARTICLES, AND METHODS

56-57. (Cancelled)

58. (Previously Presented) The polymer composition of claim 35 wherein the elastomeric polymer is selected from the group consisting of styrene-isoprene-styrene (SIS), styrene-butadiene-styrene (SBS), styrene-ethylene-propylene-styrene (SEPS), and styrene-ethylene-butylene-styrene (SEBS).

59. (Original) The polymer composition of claim 7 further comprising a swelling agent.

60. (Original) A medical article comprising the polymer composition of claim 1.

61-74. (Cancelled)

75. (Currently Amended) A polymer composition comprising:

a hydrophilic polymer;

a hydrophobic polymer; and

a silver oxide;

wherein the polymer composition is nonadherent and contains less than 1 wt% water based on the total weight of the composition;

wherein the silver oxide is dispersed within the hydrophilic polymer;

wherein the hydrophobic polymer forms a continuous phase; and

wherein all of the silver oxide has a average particle size less than one micron.

76-93. (Cancelled)